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"Space, Recipe for Success"

I am grateful for this opportunity to talk with you about our young national space program, which has a brief history studded with shining achievements and an enduring future, bright with the promise of even greater discoveries and benefits to come.

You are probably accustomed to hearing a discussion of a more political nature. Your program chairman tells me, however, that it was impossible to obtain such a speaker for today, as there are not very many presidential candidates in Washington at this time. They are all out campaigning in the primaries.

Individually, women spend the greater part of the nation's pay checks, even to buying their husband's suits. I have been married long enough to know what an effective force these individual entrepreneurs can be in support of any worthwhile human endeavor when they unite their efforts in an organization such as yours. I hope, therefore, that my remarks today will strengthen your understanding and support of the

nation's present and planned activities in space.

You are to be congratulated for your active interest in politics, which President Johnson two weeks ago described as "man's noblest profession."

You may have read the filler item in a magazine last month which told of the national committeewoman -- of another party -- who was pleading for more participation by women in the affairs of the party.

"I appeal to you," she said, "to help us broaden the base of our women."

Today I will attempt to broaden your base of knowledge of space exploration.

The American effort to push outward into the new scientific and geographical frontier of space is affecting the thought and enriching the lives of men and women throughout the world. Our entry into space is still young. The end of its first decade was observed January 31, the anniversary of the launching of our first satellite, Explorer I. It is because the space program is so young, and so filled with unrealized potential, that more Americans must be made aware of its true nature and significance.

Let me compare the present stage of space exploration with a situation which you may have experienced.

Most of you, being wives and mothers, are thoroughly familiar

with the kitchen and with the sundry and assorted steps in preparing a full-course meal. Let's suppose that you have dragged out all the necessary pots and pans, and all the basic ingredients -- the meat, flour, potatoes, tomatoes, lettuce, and other vegetables, and the salt, sugar, spices and other extras that make the food more tasty.

Now, at this point the husband walks in, home early from the office. All that you have to show as proof of the lovely meal by candle-light that you have envisioned, is a somewhat cluttered kitchen, pans bubbling atop the stove, discarded lettuce leaves and potato peelings on the kitchen sink along with a fine white mist where some of the flour spilled out.

Looking the scene over, he asks, "When will dinner be ready?"

Now, exploring space is an enormously complex venture; and I submit to you that a goodly portion of our first ten years has been spent cluttering the kitchen.

In the midst of the broad-scale preparations we are making for a thorough exploration of the space near earth, the moon, and the planets, some few people have appeared on the scene to ask, somewhat impatiently, "When will the dividends from space be ready?"

The wife fixing dinner had a vision of a wonderful meal, and she was busily working toward that goal, although her hungry husband could not visualize the end result. We who are in the space program have a

vision, and we are working toward definite goals for its achievement. It is always difficult to foresee the results, the benefits, or the applications of research or exploration into a new field.

Back in 1825 a New England newspaper is reported to have carried the following criticism of the "iron horses" which were soon to span this continent and revolutionize its commerce:

"Notice -- The most absurd scheme that ever entered the head of man. What can be more absurd and ridiculous than the prospect of locomotives traveling twice as fast as stage coaches? Why, the locomotive would prevent cows grazing, hens laying, and would cause ladies to give premature birth to children. We should as soon expect women to suffer themselves to be fired off upon a rocket, as trust themselves to the mercy of such a machine. Speed should be strictly limited to eight or nine miles an hour, which is as great as can be ventured on with safety."

The locomotives came, and women passengers trusted themselves to the mercy of such a machine -- most with impunity. While we have had no women astronauts to date, many young ladies have offered themselves "to be fired off upon a rocket."

And when Alexander Graham Bell was granted a patent in 1876 on the telephone -- the device which is indispensable today to men, women, and particularly teenagers -- he was greeted with skepticism. When the telephone was exhibited at the Philadelphia Centennial Exposition that year, The London

Times called it "the latest American humbug." But within two years the first two telephone switchboard exchanges were in operation -- the first in New Haven, Connecticut, and the second in San Francisco.

The National Aeronautics and Space Administration, which will observe the tenth anniversary of its formation on October 1 of this year, was given the mission of carrying out this nation's programs for the scientific, peaceful exploration of space and the earth's atmosphere. The overall objective is to make America a spacefaring nation, second to none. The past decade has been spent in building the base for future wide-ranging operations, and for making the first tentative probes into space. NASA has assembled teams of skilled people, developed huge launch vehicles and complex spacecraft, built static test stands, blockhouses, and launch pads, and obtained a world-wide tracking and communications network. These are the pots and pans that are necessary to sustain a multi-faceted, wide-ranging program.

And during the preparations for serving up a full-course dinner, we have sampled a few of the dishes.

Unmanned spacecraft have discovered the Van Allen Radiation Belts that surround earth, and have given us much new information about space and earth itself.

A global communications satellite system has been formed, with a membership of more than fifty nations. Daily use is made of satellite-

transmitted weather information by the Environmental Science Services Administration.

Ranger, Surveyor, and Lunar Orbiter craft have photographed and mapped the moon and tested the composition of its soil in preparation for the arrival of astronauts. Mariner spacecraft have given scientists much exciting new information about Mars and Venus.

American astronauts have gained almost 2,000 hours of manned space flight experience in Projects Mercury and Gemini.

We may have rattled a good many pots and pans in the kitchen during the first decade of space, but we have entered the second decade with demonstrated competence for using the base we have established to push further into space.

Manned space flights will get underway in Project Apollo this summer. All stages of the Saturn launch vehicles and all modules of the three-man Apollo spacecraft have been tested in earth orbit.

The smaller Saturn IB launch vehicle will be used to place three astronauts into earth orbit, where they will gain experience with the command and service modules of the Apollo spacecraft. The larger Saturn V launch vehicle, which can place 280,000 pounds into earth orbit, or send 100,000 pounds to the moon, will be used for the manned lunar landing mission. The Saturn V has been flight tested twice -- on November 9, 1967, and again on the fourth of this month. The first flight was flawless. Most of the test

objectives were met on the second flight, but we did have some difficulties with the engines that burn the high energy liquid hydrogen and liquid oxygen on the upper stages of the Saturn V. Two of the five second stage engines cut off prematurely near the end of their burning time. The remaining three engines burned 58 seconds longer than intended to compensate for this early shutdown, and the Apollo spacecraft was placed into earth orbit by the first burn of the third stage engine. This engine was then shut down, and the third stage went into orbit still attached to the spacecraft.

The third stage engine was scheduled to reignite later to propel the third stage and Apollo spacecraft from earth orbit into a simulated translunar trajectory, but the engine failed to start again. The mission was changed to test the Apollo spacecraft under different conditions, and early evaluation of data indicates that all of the spacecraft systems survived the severe tests in good condition.

I feel certain that we shall determine the exact cause of these engine difficulties, and shall be able to correct them before the next flight. Altogether fifteen Saturn launch vehicles have been flight tested to date, and we have had no major failure. We have a lot of confidence in the design, manufacture, testing, and performance of the Saturns.

The current schedule calls for the next flight of the Saturn V to be unmanned, like the first two. NASA officials are studying the data from the last flight, however, to see if the schedule can be accelerated, to see

if the Saturn V can be rated ready to carry three astronauts into earth orbit on its third launch. Then, before the end of next year, the Saturn V will be used to send three men to the moon.

Manned space flight is just now reaching the stage of travel by locomotives in 1825 -- or travel by air a century later. Few men could foresee that Orville and Wilbur Wright's fragile little plane, with its bicycle landing gear, was the forerunner of today's jet liners that now carry more passengers than trains and buses.

Going to the moon is simply another step in the extension of man's travels. It is a revolutionary step, to be certain. As William H. Seward observed a century ago, "I know, and all the world knows, that revolutions never go backward."

After the first manned lunar landing, which is the major project in NASA's space activities today, we shall continue to explore the atmosphere and space around us. We will not have exhausted all the research and exploration possibilities now visible in the next fifty years.

The next major advance in manned space flight after the initial landing on the moon is a manned orbiting space station. Interim steps toward that goal will be orbiting workshops made from the stages of Saturn launch vehicles. These stages will be outfitted to provide comfortable living quarters and laboratories for astronauts for long duration missions. Here they will conduct scientific experiments, observe the sun above the

filtering effects of earth's atmosphere, and observe the earth itself.

The orbiting satellite is a platform which has given us a new perspective of earth, a platform that promises an exciting array of space dividends. One of these is the observation of earth's resources -- agricultural, mineral, and water -- to obtain data for their most efficient use to meet the everyday needs of an exploding population.

The dividends of research can never be seen clearly in advance, but the worth of the space program is becoming more evident every day.

When Michael Faraday, in the 1800's, was asked by Disraeli, prime minister of Great Britain, what good were his discoveries in electricity, he answered, "I do not know yet; but I am certain that you will some day find a way to tax it." Faraday could not foresee the gigantic dynamos and electrical networks that thrive today and without which our civilization would come to a grinding halt.

Governments eventually found a way to put a tax on the producers of electricity. And our Government is already learning how to tax space. The Communications Satellite Corporation will be the world's first firm to pay taxes on the income from its satellites, used for television and radio broadcasts and telephone calls.

I believe sincerely that we must not seriously impair or hamper our progress in space because we cannot foresee immediate payoffs to offset the investment we are making. We owe it to ourselves and to the generations

to come to grasp the unlimited opportunities and the promise of space exploration.

President Johnson said recently that, "Future generations, looking back at our incredible decade," will be "unanimous in their belief that the treasure we have dedicated to sending man to explore the stars was the most significant investment ever made by any people."

"We will not surrender our station," the President said. "We will not abandon our dream."

When Astronaut Neil Armstrong talked with reporters about his flight in a Gemini spacecraft, he said:

"I wish," he said, "that our pictures could be sufficiently accurate to describe the magnificence of space observations. Seeing your own thruster fire, the reflections from the window, seeing the particles drift away from the spacecraft at extremely low rates, watching fires on the ground in Africa, seeing storms from above, lightning and thunder storms, and observing the whole weather panorama from 115 miles or more above the earth is something that unfortunately can't really be described."

Neil was telling about the visual beauty that only space travelers can enjoy.

If the man walking through the cluttered kitchen, where the meal was being prepared, had stopped to think, he would have seen past the pots and pans to the beautiful candlelight dinner on the patio. In the same manner,

if you will look beyond the pots and pans of the space program you will see the true worth of space research. You will see the vision of progress along the new but unexplored space frontier.